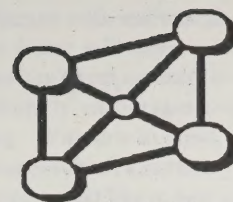


I-FRAME



Newsletter of the Southern California Digital Communications Council

Spring 1989

Volume 02 Number 1

N6KZB Resigns. Don Root, WB6UCK becomes President.

Jan 28-Riverside, CA-The resignation of Mike Burton as President of SCDCC came as a total surprise to the membership. Mike was promoted within the Riverside County Fire-CDF and is being asked to travel and spend long hours on the new upgrades to the communications systems of the department. Mike stated that, "The office of President needs a devoted individual, not only in spirit but in time."

We wish Mike well in his new position.

Don Root will succeed Mike as president of SCDCC.

P.V. Node Operating on 145.07

AJ6F recently got the PV2:AJ6F-2 NetRom node back in operation up on Palos Verdes. The frequency is 145.07 and it's intended purpose is to link the South Bay stations with AJ6F-1 BBS. Since the BBS is only at 86 feet elevation MSL, there have been problems with some of the stations connecting. PV2 should make it easier for those wishing to connect that can't quite do so directly.

As a reminder to folks using 145.07, the SCDCC coordinated the channel for low-level LAN use. Distant connections via either digipeating or direct NetRom connections is discouraged. In the spirit of the coordination, PV2 will not support AX.25 digipeating. It is hoped that users on 145.07 will use their local system and avoid "BBS DX-ing" as a courtesy to local users throughout Southern California.

cont'd on Pg. 10

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Local group to use HAPN 4800 baud modems

The Hamilton Area Packet Network (HAPN) radio club developed a 4800 baud modem which can be used with regular 2-meter radios and remain within required bandwidth limits. To date, a number of these modems are in service in California, and other areas of this and other countries. Reports from some users indicate a BER (Bit Error Rate) comparable or less than 1200 baud modems currently in use. Even though TXdelays remain at about 200 to 300 ms, the packet data burst lengths are reduced by a factor of 4, which is expected to increase bandwidth usage efficiency.

A group of users in the Beach Cities area, around San Clemente and Dana Point bought several modems to conduct experiments on the use of higher baud rates on 2-meters.

All group members are running AEA TNCs and IBM compatible clone computers running a brand new software program called "Packet-PLUS" which supports binary file transfers with simultaneous user text on the same connect, as well as multiple-connects. The hardware and software combination is expected to provide an excellent platform for testing. Our experience with file transfers at 1200 bps packet is that 400 to 500 bps real throughput can be expected, or even slower. Hopefully, the average throughput at 4800 bps will be significantly higher.

At the present time, all of the modems have been built and are in the process of being tested off the air. On the air tests are expected to begin in early May.

In addition to the local use of the higher bps (bit per second) modems, the group is in the process of putting a NET/ROM node on Catalina Island, at approximately 1500' which will have three ports, a 2-meter 1200 baud port, a 2-meter 4800 baud port, and a 220 Mhz port to tie into K6IYK, providing access to the larger network. The above nodes will be named something like CTLN12, CTLN48, and CTLN22 respectively.

Questions may be directed to Jeff, WA4EGT @ KJ6EO.

W9ZRX Linked BBS List Available

The April 1989 release of the W9ZRX Linked BBS List is "in the mail". This is the successor to the List WORLI started as the number of autoforwarding BBS began to grow. The purpose of the List is to help Sysops compose their forwarding files, and to help the traveling packeteer find a BBS.

cont'd on pg. 10

Call for Papers: ARRL Computer Networking Conference to be held in October

The eighth ARRL Amateur Radio Computer Networking Conference will be held on Saturday, October 7, 1989, at the Air Force Academy in Colorado Springs, Colorado. Technical papers are invited on all aspects of Amateur Radio digital communications via ionospheric, tropospheric, meteor-scatter and satellite modes. Topics may include network development, architecture, protocols, standards, hardware, software, modulation and encoding schemes, applications, frequency planning and practical experience, such as traffic handling. Of particular interest are digital signal processing, digital speech and image transmission, and new space programs employing digital communications. Prospective contributors should request an author's kit and identify the topic of their paper immediately. The deadline for receipt of camera-ready manuscripts is August 28, 1989. Author kit requests and camera-ready manuscripts should be mailed to Lori Weinberg at ARRL headquarters. Printed proceedings will be available at the conference and by mail from ARRL headquarters.

If you like the software send an indication of your support! Please include your name, call sign, address, telephone number and home PBBS.

J. Gordon Beattie, Jr, N2DSY

Northwest Amateur Packet Radio Association meets in July

The Northwest Amateur Packet Radio Association (NAPRA) will hold the 1st Northwest Packet Networking Forum on Saturday, July 15 in the Seattle area. Its purpose is to discuss ways to improve the network's operation and architecture today, tomorrow and far into the future. The forum discussions will be divided into subjects

Membership Information

The SCDCC is a Not For Profit organization dedicated to the rational and planned, growth of the various groups and individuals providing facilities and services to the packet radio community, and for providing information which will aid individuals in understanding the technology and preferred operating practices.

Membership in the organization is open for any individual interested in promoting the purposes of the Council. A donation of \$10.00 is requested to defray the costs of mailing an informative Newsletter and a Newuser information package to those unable to download it for themselves.

Contact K6IYK @ K6IYK, Jim Forntey, secretary, for application or download from most PBBS's. Or, mail inquiry to SCDCC, P.O. Box 4357, Chatsworth, CA., 91313

centered around these three time frames with individuals sharing proposals or concepts. Each time frame will have a moderator whose purpose is to insure everyone has an opportunity to express ideas or ask questions. NAPRA strongly encourages everyone's participation in this two-way dialog. With this in mind, they ask those who desire to present their ideas to submit a summary in order to allow proper scheduling. Also, they would like to hear ideas and problems to be discussed. The only prerequisite for attendance is a working knowledge of packet radio and a desire to improve the network. NAPRA will be releasing further details in the near future, i.e., place, time, directions, accommodations, etc. and would like to hear from all of those planning to attend. The point of contact in NAPRA is Dennis Goodwin, KB7DZ @ KD7NM.

from Tad Cook, KT7H @ KE7OM.

Packet Radio on 18 mHz

On January 31, the FCC opened the 18 MHz band to Amateur Radio operation. Packet radio and other data communications (F1B type emissions) are permitted in the 18.068 - 18.110 MHz subband (regional band plans call for 18.100 - 18.110 MHz, with CW at 18.068 - 18.100 MHz) and, although the normal power limit of 1500 watts output applies, amateurs must not cause harmful interference to US government and foreign fixed service operations. On July 1, the band will be allocated exclusively to Amateur Radio use.

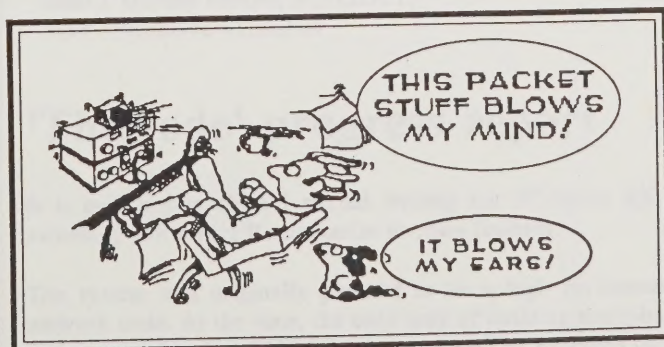
TCP/IP user Newsletter

The New England TCPer is a bimonthly newsletter for hams who are using TCP/IP for packet-radio communications. Recent issues described using SLIP to access PC-Pursuit, reviewed plug-in packet-radio adapters for the IBM PC and its clones and presented a tutorial on using "BM Mailer." The newsletter is edited by Rich Vitello, WA1EQU, and one year subscriptions are available for \$12 from the following sources:

The New England TCPer
8 Denfeld Dr
Westboro, MA 01581

Alex Mendolsohn, AI2Q
48 S Longbeach Ave.
NY 11520

Bryan Biggers, N9GBJ
4521 Sentinel Pass
Madison, WI 53711



Codeless license with packet radio privileges proposed

A special committee appointed by ARRL President Larry E. Price, W4RA, has submitted a report recommending the creation of a class of Amateur Radio license not requiring a knowledge of Morse code. The report was presented to the ARRL Executive Committee, which met on April 1; the Executive Committee did not take a position on the substance of the report, but referred it to the full Board of Directors for consideration during its July 21-22, 1989, meeting. ARRL members, other licensed radio amateurs and others interested in Amateur Radio are invited to review the report and to make their views known to ARRL Division Directors, whose names appear on page 8 of QST.

The special committee stressed that its proposal, if adopted, would not cause any licensee to lose any present privileges. It proposed a new class of Amateur Radio license, with a written examination somewhat more comprehensive than the present Technician exam, but with no requirement for a Morse code examination. Holders would be permitted to operate on all frequencies and with all privileges available to Technicians above 30 MHz, except that 2-meter operation would be limited to frequencies between 144.9 and 145.1 MHz and to digital modes only. Examinations would be given only by accredited Volunteer Examiners and distinctive call signs would be assigned.

The mission of the committee was "to explore the implication of a no-code amateur license."

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HF packet-radio cooperative design effort

On April 5, the ARRL announced the creation of a new project to develop the next generation of modems and protocols for HF packet-radio operation. The project will coordinate the efforts of Amateur Radio designers whose proposals are adopted by the ARRL. Modest funding will be available for reimbursement of approved direct out-of-pocket expenses related to the development of prototypes, but not labor, overhead or other costs. General information concerning this project can be found in the May issue of QST, pages 55-56.

Funding for this project is to come from two sources. One is from the League's Technology Fund, which welcomes individual and corporate contributions. Also, the League has applied to the Federal Emergency Management Agency (FEMA) for a small grant to help underwrite this project. FEMA has indicated keen interest in this project because they want to retain their ability to communicate directly with ham radio operators using packet radio and, furthermore, they need to encourage interoperability between equipment owned by FEMA and amateurs. In addition, they believe that hams will develop equipment that is inexpensive enough to permit large-quantity procurement by the Federal Government.

Serious designers interested in participating in this development project may obtain further information from Lori Weinberg at ARRL Headquarters.

Packet Radio Network Map

Budd Turner, N7EOJ, has released the latest version of his packet-radio network map of the western United States. The map covers the 6th and 7th call districts plus 0-district state Colorado and 5th-district state New Mexico and includes digipeaters, PBBSs, gateways, and network nodes. The map xxx and an accompanying node alias-call sign cross-reference table are available by sending an SASE to Budd at 412 N Belvedere Av, Tucson, AZ 85711.

New Rose Switch and Server Release

The Radio Amateur Telecommunications Society (RATS) has released version 330 (for March 30) of Tom Moulton's (W2VY) ROSE X.25 Packet Switch and Brian Riley's (KA2BQE) ROS-Server/PRMBS software.

The switch software runs in a TNC 2 (or clone) or a PacComm DR-200. It supports back-to-back TNC configuration. The new version of the software has several minor bug fixes and has been in operation on eight switches in New Jersey for several weeks without problem. The server software runs on any MS-DOS/PC-DOS compatible computer and provides many handy user and SYSOP functions that are unique to PBBSs.

The software may be downloaded from CompuServe's HamNet (data library "DL9") or from The RATS BBS at 201-387-8898. Log on as "rats" ("rats" must be entered in lowercase) and a menu will appear listing current files followed by a prompt for your name, etc. and then the file name. The file transfer is available using XMODEM only.

The code may also be obtained by sending \$15 (US funds) to:

The Radio Amateur Telecommunications Society
206 North Vivyan St
Bergenfield, NJ 07621

from J. Gordon Beattie, Jr., N2DSY,
via CompuServe's HamNet

'TheNode' progress report

It is now a year since I started writing my PC-based AX.25 switching software. I'll summarize its main features.

The system was originally planned to be a high performance network node. At the time, the only way of building multi-band nodes was to interlink TNC 2 (or compatible) TNCs running NET/

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Amateur Radio Digital Communications, Grant 151

<https://archive.org/details/iframenewsletter00unse>

ROM software via a multi-dropped asynchronous bus running at 9600 bit/s. This was expensive in both hardware and software and was limited in both AX.25 channel speed and interport bandwidth. Furthermore, the method of interlinking the TNCs (via a diode matrix) made nodes with more than four ports very difficult to implement.

Things have changed somewhat over the past year (the software costs have been reduced, a variety of TNC 2 clones have been produced and improved interlinking techniques developed), but there is still nothing capable of running very fast links. Also, with the rapid expansion of the network, the need for each port of a multiport node to have its own call sign and, hence, entry into the nodes list, has caused the list to get rather large. My software allows a multiport node to run with a single call sign, supports AX.25 links up to at least 64-kbit/s (given suitable communications hardware) and eliminates the bottleneck of the asynchronous link between ports.

The software also allows the user or, more usefully, a PBBS, direct access to the network. This was originally thought to be of less importance than the improved node performance, but the introduction of the multiport PBBSs and the rather slow introduction of radios and modems capable of high speed operation [not to mention the licensing problems on 23 cm, the band generally regarded as ideal for high speed operation), has meant that initial installations have been made primarily to support multi-user PBBSs. The software will support up to 16 copies of the chief multi-user PBBSs that run in a multitasking environment (WA7MBL and WORLI) or up to 16 users on the G8UFQ system (although the PBBSs themselves may not support so many copies). This traffic may be trunked over a single radio link (preferably at 9600 bit/s on a dedicated link) to the nearest network node. All PBBS ports have the same call sign, which also appears in the nodes list of neighboring network nodes, allowing the user to connect directly from the local node.

Current Status

The software has been running at some sites since September and a "beta test" stage commenced in mid-December. Approximately six copies are currently running and are supporting WA7MBL, WORLI and G8UFQ PBBSs. The software seems to behave reasonably well, but a few unexplained crashes have occurred, so there is still some way to go before it is fit for general release. Also no one is currently running it as a major switching node.

Benefits to SYSOPs

The system offers two main benefits to PBBS operators and two to PBBS users. It allows a multi-user WA7MBL or WORLI system to operate with just one radio instead of a separate TNC and transceiver (and band) for each port. Setting up the forwarding system is greatly simplified, as the networking software does away with the need to define each step in the FWD file. The forwarding system should also be more reliable and the network will automatically reroute around a failed link.

The user benefits from being able to call the PBBS directly from his local node, by the SYSOP being able to support more simultaneous users and by not having to try several different routes and call signs to find a free port.

Future Plans

Once the current beta test phase is completed, I have a bit of work to do to make the system more like the existing networking code (e.g., sorting nodes list into alphabetical order and implementing the CQ command). I have found a source for a communications card which will run up to at least 256-kbit/s, so I will produce a driver for that to be ready when very fast microwave links become available. I am also planning a version which can run from PROM, so that a node can be built using a PC motherboard (now available very cheaply) without disk drives.

Further in the future is investigation into protocols suitable for building a high speed "trunk overlay" network. The existing NET/ROM system works pretty well at current link speeds and relatively limited total range, but I do not think it is really up to coping with a nationwide network. We may end up with regional NET/ROM-like systems, interlinked by some other system. Any ideas would be welcome!

(As we were going to press, news was received of the untimely death of Mr. G. J. Chester, G8UFQ, whose PBBS software is mentioned in this article. - Ed)

by John Wiseman, G8BPQ,
from Connect International,
transcribed by Hank Greeb, N8XX (TU HANK)

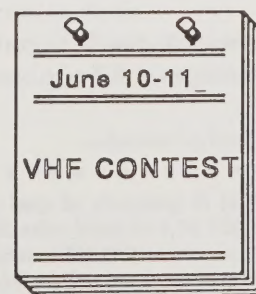
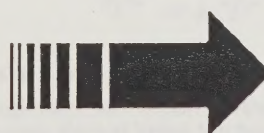
from ARRL Gateway News, Stan Horzepa, Editor



HAMCON 89

International Goodwill

Final plans have been made for HAMCON 89. This years location will be the Los Angeles Airport Hilton Hotel. The dates are August 25, 26, & 27. This year there will be both Saturday and Sunday tech sessions, with the exhibits open both days. On Friday night, there will be no host cocktails, possibly dancing to a big band sound quartet, and even strolling Magicians. The exhibits will also be open for a two hour preview. Our registration prices have even been held to the same as last year. So, mark your calendar and make plans to come and enjoy yourselves at HAMCON 89.



Beginner's Corner

PACKET RADIO: An Introduction

by Larry Kenney, WB9LOZ

Packet Radio is the latest major development to hit the world of Amateur Radio. If you haven't already been caught by the "packet bug", you're probably wondering what it's all about and why so many people are so excited about it. Well, continue reading, because you're about to find out.

Packet seems to offer something different from other facets of Amateur Radio, yet it can be used for everything from a local QSO to a DX contact 2500 miles away (on 2 meters!), for electronic mail, message transmission, emergency communications, or just plain tinkering in the world of digital communications. It presents a new challenge for those tired of the QRM on the low bands, a new mode for those already on FM, and a better, faster means of message handling for those on RTTY. Packet is for the rag chewer, the traffic handler, the experimenter, and the casual operator.

A ham can get involved very easily with relatively small out-of-pocket expenses. All you need is a 2-meter transceiver, a computer or terminal, and a TNC. You probably already have the two meter rig and a computer of some kind, so all you need to buy is the TNC, which costs just over \$100. The TNC is the Terminal Node Controller, the little black box that's wired between the computer and the radio. It acts very much like a modem when connecting a computer to the phone lines. It converts the data from the computer into AFSK tones for retransmission and changes the tones received by the radio into data for the computer. It's a simple matter of wiring up a plug and a couple jacks to become fully operational.

Packet is communications between people either direct or indirect. You can work keyboard to keyboard or use electronic mailboxes or bulletin board systems to leave messages. Due to the error checking by the TNC, all of it is error free, too. (That is, as error free as the person at the keyboard types it.) As the data is received it's continuously checked for errors, and it isn't accepted unless it's correct. You don't miss the information if it has errors, however, because the information is resent again. I'll go into how this is accomplished in a later part of this series.

The data that is to be transmitted is collected in the TNC and sent as bursts, or packets, of information; hence the name. Each packet has the callsign/rx address of who it's going to, who it's coming from and the route between the two stations included, along with the data and error checking. Since up to 256 characters can be included in each packet, more than three lines of text can be sent in a matter of a couple seconds. There is plenty of time between packets for many stations to be using the same frequency at the same time, and all using the same repeater. The repeaters, known as digipeaters, are simplex operations and occupy a single frequency, as opposed to the common two-frequency repeaters used for voice communications.

You can link from digipeater to digipeater, too, extending your

range tremendously. I've worked twelve states on 2-meters with packet, all with a ten watt rig, thanks to this linking capability.

If all of this sounds confusing, don't let it bother you, because that little black box, the TNC, does everything for you automatically. Packet might seem very confusing at first, but in a day or two you're in there with the best of them. In future parts of this series, I'll be telling you more about packet—how you get on the air, how to use it to your best advantage, and ways to improve your operation. We'll even talk about that little black box, the TNC, and tell you about all its inner-most secrets.

(Thanks to K4CEF and Westlink Report for providing "POINTS TO PONDER ABOUT PACKET - FOR THE NON-PACKET-EER" in their November 14, 1986 issue. I've used information from that article in this column.)

Part 2 in next issue of SCDCC Newsletter

Frame Identifiers

Once in a while, questions come up on the Monday night packet voice net on the packet frame identifiers which are displayed at the end of each packet. Some of the following has been taken from the AEA PK-232 Manual.

C or SABM	Layer 2 connect request
D or DISC	Layer 2 disconnect request
UA	Unnumbered acknowledgement frame. A response to a "C" or "D" which indicates all is ok command accepted.
I	Information frame. Info usually typed on a key board and xmitted or received by you.
RR	Receive ready. All previous has been received ok and now ready to receive more.
RNR or NR	Receive not ready. Your TNC can't receive more because it is full up.
RJ or REJ	Reject frame. Something is out of sequence. You either missed a frame or got a frame duplication.
FRMR	Frame reject. Fatal error, totally out of protocol, link reestablished automatically.
UI	Unnumbered information frame. Data sent out of protocol. Data sent from keyboard in the unproto or conversation mode.
DM	Disconnect mode. Busy or already disconnected. Would be sent instead of a UA in response to a "C" or a "D".

-submitted by Terry Neal

- Beginners can obtain on-the-air help by checking in to the
- weekly Packet Voice Net held Monday Nites at 8:00 PM, on
- 145.145 MHz (-600). This repeater (W6CNL) is located on
- Santiago Peak and has coverage as far north as Ventura
- County. Terry Neal, AA6TN is net control.

Southern California Association of Packet SysOps (SCAPS)

Meeting Minutes

The semi-annual meeting of SCAPS took place on April 8, 1989 at Fullerton, California. In attendance at the meeting were the following SysOps and guests:

Call	Name
KA6AMD	Erich Muschenske (WA6YBN BBS)
W6AXM	Gar Harris
N6BVU	Karl Pagel (Guest)
N6CQW	Roger Peck
AJ6F	Bob Poole (Scribe)
KB6GVT	Mike Gunderman
K6IYK	Jim Fortney (Chairman)
KB6JES	Alan Dietrich
WB6MKA	Ell Fullmer (W6FNO BBS)
N6MVS	Jon Stoops
WB6OWD	Tim Goeppinger (WA6YNT BBS)
KB6RAA	Barry Ulrich
W6VHU	Earl Pittman (W6QFK BBS)

SIGN-IN AND ACCEPTANCE OF APPLICATIONS

OPENING REMARKS & INTRODUCTIONS

Those present introduced themselves and described their stations and activities. Members and others arriving late were given the opportunity to articulate their activities as well.

REPORTS / MEMBERSHIP

Chairman Fortney led a discussion of a review of southland area BBS changes. As a result of these discussions, closures and new activities were disclosed to the members present. We regretted losing Fred Coe, WA0RTO to a promotion and relocation to Santa Fe, NM, but wish him all the best in his new location. Erich Muchenske, KA6AMD, and the Sierra Amateur Radio Club, will fill in for Fred with the WA6YBN BBS, now situated in Ridgecrest.

Next, the members accepted new applicants to the SCAPS roster as follows (conditions of membership are contained in the SCAPS charter):

W8AKF	Mike Thousand Oaks
KA6AMD	Erich Ridgecrest (WA6YBN)
KB6GVT	Mike Rialto
KB6RAA	Barry Montebello
WB6MKA	Ell Glendora (W6FNO) *
N6ADV	Chris Yermo

* Replacing WA6QZY

Chairman Fortney reviewed his discussions with Lew Jenkins, N6VV, the newly-elected chairman of the Northern California Packet Association (NCPA). Distribution designations and HF SysOp meetings at Dayton were discussed.

OLD BUSINESS

There were discussions on the re-allocation of the 220 MHz amateur band. No conclusions were reached on what plans the SysOp community might have for 220. Most discussions were centered around where the present systems utilizing the bottom segment of 220 could move. The 1.2 GHz and 440 MHz bands were mentioned.

The organization then took note of the fact that N6KZB had resigned as the SCDCC President, and WB6UCK took his place. The members then resolved to take a more active (aggressive?) role in SCDCC meetings and activities. K6IYK continues as the main SCAPS/SCDCC liaison.

For-sale messages were again a major topic. Several viewpoints came to light during these discussions. The general consensus was:

1. For-sale traffic on packet BBSs is third-party traffic.
2. The FCC may issue citations for violation of the present rules, especially where prices are mentioned/negotiated. The liability for the citation is jointly shared by the system operator and the issuing user.
3. We are still affected by the PRESENT rules, and will operate accordingly.

There were several methods discussed about contention with the prices and/or for sale mail in general. Several SysOps indicated that they would edit out prices when they see them, and others outright declared that all for sale mail would flatly be killed. Most agreed that the present FCC rules were too restrictive in this regard, and look forward to a more reasonable approach to packet for-sale mail.

The consensus for an "official" policy was that for-sale without prices continues to be acceptable.

A discussion of policy for "shareware" and "copyrighted" source programs ensued. It was a general consensus that "shareware" and "copyrighted" programs are OK, as long as all of the original distribution disclaimers (with the exception of an asking price) were retained. It was generally concluded that this kind of traffic was clearly a very minor sub-percent of all the packet mail. Public-domain programs were considered to be just that, and therefore acceptable.

The SCAPS policy regarding ASIANET traffic has been discarded. No special consideration will be given to traffic of this type.

The discussion of ALLUS and USA designators led into other discussions about designators across the country. K6IYK mentioned that the rest of the country was about to embark on a series of designators relating to topic matter rather than geographical areas. Most present thought that the current

system used in the "greater Disneyland" area were superior to those being proposed and/or implemented elsewhere in the country. The SCAPS distribution policy is to continue with the limited distribution of special-interest designators and to continue also with the general geographical designators now in use. K6IYK urged the SCAPS members to contact influential network planners and urge that the geographical designators be used, particularly before the Dayton Hamvention time.

Software status review:

1. K6IYK said that WORLI BBS v 10.02 would be out soon.
2. There has been no upgrade to WA7MBL since v 5.12
3. W6AXM reported PRMBS would soon be supporting \$BIDs
4. N6MVS and KB6GVT report success with AA4RE Host BBS
5. CBBS - no major items
6. XRX - no reports

Designator standards were then re-visited - see discussion above.

We all then got up, locked the door, walked down to the local fast-food joint, and pigged out for 30 minutes or so.

On the subject of frequency planning, the group discussed several items including a re-visit to the 220 problem. N6MVS and KB6GVT indicated the 1.2 GHz Inland Empire system was still several months away. A discussion about the congestion on 223.42 revealed a real need for coordination of forwarding times on this channel. AJ6F will get to it one of these days.

SCAPS members and all other Southern California SysOps are encouraged to prepare/update and transmit an access map for their system in order that others may refine forwarding and distribution files. Refer to recently issued maps for examples (K6IYK.MAP, AJ6F.MAP, etc.).

NEW BUSINESS

The Southwestern Division ARRL Director invited SCAPS to appoint a candidate as an "assistant director" to the Director. The consensus was that SCAPS is an ad-hoc association, and has no affiliation with the ARRL; therefore, we VOTED to decline the offer for an assistant director at this time.

K6IYK reported on the proceedings at the initial "Systems Implementors" meeting held March 11th. The meeting was to attempt to organize the network building process. N6MVS is building a database of system resources for the SCDCC in conjunction with this new organization.

K6IYK Indicated that he had reviewed several complaints about systems that attempt to cover more than their local area or try to forward on circuits where they are not wanted. SCAPS members present agreed that the most intelligent choice is to run lower power and limit the coverage area in order to avoid the problems of hidden-terminals and the

resulting collisions. We also agreed that the 144 MHz band was too valuable a user resource to continue forwarding traffic on those frequencies. All systems are encouraged to arrange for BBS to BBS traffic to take place on a non-user channel, 24 hours a day. While this is not completely possible at this time, it is a system design goal. A "cellular" type of approach is recommended for user channels - keep the emissions low-level and the users close-in. Let the next community over "re-use" the same channel.

K6IYK reported that the Los Angeles County DCS had adopted a plan to install BBS software at several main locations in conjunction with the RACES activities. MS-DOS clones would be used to set-up and operate as BBSs, with mail-forwarding and all the other attributes.

The IEBBS contingent took an action item to begin coordination planning for the proposed 1.2 GHz Santiago Peak duplex machine to be used as the 4800 baud hub for Southern California inter-LAN traffic.

N6CQW was concerned over the unavailability of the KD6SQ system for forwarding purposes. The IEBBS group indicated that KD6SQ was, indeed, overworked and could stand a lighter load. N6CQW and AJ6F had arbitrarily started to exchange bulletin traffic earlier, and that path was pronounced to be the "official" LA/SD path henceforth.

Some discussion of forwarding to WA6YBN indicated that K6IYK would prefer that KD6SQ be the interface to forward bulletins and traffic. The IEBBS members present agreed to make it so.

AJ6F and WB6OWD announced that WA6YNT would have to go QRT as a result of the closure of the Northrup facility in Anaheim. Ensuing discussion brought about a plan for W6AXM to assume the area NTS duties and adopt the orphaned Orange County users. This plan was deemed to be workable by those present and would lighten the traffic load on 145.36 where W6AXM operates. WB6YMH will continue to be serviced by K6IYK and AJ6F.

KB6JES, WB6MKA and KB6GVT responded to allegations that N6CUS was not fully supporting current WESTNET activities; they indicated that he was not always forwarding traffic and that he had no BID support because he was still running WA7MBL version 3.0. KB6JES and WB6MKA took an action to work with N6CUS to attempt to get him a later version of software in order to be compatible with the rest of the Southern California area.

N6MVS gave a summary of AA4RE BBS features, and expected improvements.

The SCAPS policy for serving KA-PBBS and the emerging "personal BBS on-a-chip" systems is that we will continue to forward mail to those systems as long as (1) we can connect directly (no digi or node) and (2) the mail is for the owner of the PBBS ONLY!

Continued on Pg. 10

MINUTES OF THE TECHNICAL COMMITTEE MEETING

THE SOUTHERN CALIFORNIA DIGITAL COMMUNICATIONS COUNCIL

OPENING REMARKS — The meeting was held on Saturday, January 7, 1989, in Room 13 in the basement of the Riverside County Emergency Operations Center (EOC), Riverside, California. The meeting was called to order at 10:30am by SCDCC President Mike Burton, N6KZB, acting in his capacity as Technical Committee Chairman.

INTRODUCTIONS — Chairman Burton asked each member and visitor to introduce himself. The following were in attendance:

COMMITTEE CHAIRMAN

Mike Burton N6KZB @ N6KZB

MEMBERS OF THE TECHNICAL COMMITTEE

Jim Fortney	K6IYK @ K6IYK
Jon Stoops	N6MVS @ N6MVS
Orville Beach	WB6WEY @ K6IYK
John Hudson	N6RKJ @ N6KZB
Pete Bickerdike	WB6DAO @ WB6DAO
Jim Hendershot	WA6VQP @ WA6VQP
Julian Macassey	N6ARE @ WB6YMH
Mike Brock	WB6HHV @ N6CQW
Bruce Brown	AC6O @ WA6YNT
Tom King	KA6SOX @ N6BGW
Don Root	WB6UCK @ WB6YMH
Dennis Fandalch	WB7QKP @ WB7QKP

VISITORS

Scott Avent	N6BGW
Dave Avery	
Kent Darden	WA6GMC
Bill Gregory	WA6TDH
Jeff Lloyd	N6FRW

The following Technical Committee Members were absent:

Erich Muschinske	KA6AMD @ WA0RTO
Robert Gregory	(call unknown)

APPOINTMENTS — Chairman Burton made the following appointments:

Network Database Manager	Jon Stoops, N6MVS
Librarian	Orv Beach, WB6WEY
Technical Committee Scribe	Bruce Brown, AC6O

DISCUSSION — NEWSLETTER — The general consensus of the group was that the new newsletter format is excellent; the next newsletter editor (whoever succeeds Barry next year) must follow suit. We will continue distributing complimentary copies of the newsletter to other clubs and organizations. The newsletter needs YOUR input!

ESTABLISHMENT OF GUIDELINES/GOALS for SCDCC for the coming year — Chairman Burton called for suggestions from the floor for goals that the SCDCC should pursue during 1989. The following suggestions were placed on the blackboard and discussed:

SCDCC GOALS FOR 1989 (TENTATIVE)

- o 9600 baud (or faster) high speed links
- o Network reliability
- o LAN/Cellular
- o Duplex on 2 meters
- o InterLAN
- o RF containment of W6TJ
- o Liason(s) to other organizations
- o \$\$\$ (funding)
- o Public access 9600 baud dupeex repeater
- o TCP/IP
- o User education
- o Development in other ham bands

The group also discussed the NEWUSER.INF new user information file.

BREAK — The group broke for lunch from 11:30 to 12:30.

USER EDUCATION — Following the break, Jim K6IYK took the floor and lead a discussion of the files and other information that should be consolidated and published, as well as given to the Librarian Orv WB6WEY for inclusion in a LIB.ARC (compressed library) file. It was mentioned that we need to credit the sources, and that we need to be careful to avoid accidental copyright infringement, especially if we collect money for the print version. The following items were considered for inclusion:

- o POOP.TXT
- o NEWUSER.INF (includes BBS usage commands)
- o SCPACKET.INF
- o The 8-part (or more) PACKET INFO SERIES, by Larry Kenney, WB9LOZ @ W6PW
- o GRIPES.DOC or GRIPES.TXT
- o BBS USERS, Parts 1 and 2
- o The NETROM.DOC files
- o Assorted TNC-2 fixes, upgrades and enhancements (collected from various files on the WB6YMH-2 BBS)
- o TNC-2 interface documents — how to interface the TNC-2 to various models of radios (ICOM, etc.)
- o Publish who the IP Address Administrators are for the various counties, along with the packet mailing address for each administrator
- o Some form of cover letter explaining who we

(SCDCC) are, and why we are publishing this information

- o Include a reference to the information provided by the Digicom people

BUDGET — Jim K6IYK then discussed budgeting for SCDCC. He gave an example of \$40.00 cost to the club (all of which was in postage) for the production of the most recent I-FRAME newsletter. He estimated that this issue would have cost the club \$380.00 if the club had had to pay all of the costs itself. It was mentioned that Newsletter Editor Barry KB6RAA's school provided free reproduction of the last newsletter; we expect this to continue in the future.

Jim said, "If we published the newsletter as often as we had intended to all along, we would be far in the red. We do not have enough money to do it. If we're going to take on the distribution of additional printed materials, unless we have more benefactors, there's expense involved in that, so please keep that in mind when we talk about what we want to do; when we start talking about putting out lots of stuff in the stores."

Jim also gave another example: "In 1986, when I was publishing SC-PACKET on a regular basis, I spent over \$400.00 publishing it, putting it in radio stores, and most people didn't even know that it was there. It gets expensive—it means either some other method of funding it, or more benefactors, or more dues."

The group then continued its discussion of User Education. The group discussed the possibility of having Jim WA6VQP write an article for one of the major ham magazines, on behalf of the club. It was decided that Jim Hendershot WA6VQP will spearhead the collection of packet information that is general (that is, not specific to Southern California), and generate a draft. Similarly, Jim Fortney K6IYK will spearhead the collection of packet information that is unique to Southern California and also generate a draft. As each of the two drafts becomes available, it will be submitted to SCDCC President Mike N6KZB for his review and approval, prior to publication or distribution. Both Orv WB6WEY and Julian 6ARE are to assist on the committee. It is expected that all four men will be involved in the preparation of BOTH drafts.

FCC & 6-METER NPRM — The FCC currently has before it an NPRM to extend 6 Meter digital operations down to 51 MHz. (Comments to the FCC are due by the end of this month.) The group discussed a letter drafted by Mike WB6HHV to the FCC. Following the discussion, it was moved by Jim K6IYK and seconded by Tom KA6SOX for the SCDCC to comment the FCC in support of the expansion of digital operations in the segment of the 6 Meter band from 51 to 52 MHz. The motion carried.

RED CROSS - The group discussed having a Red Cross liaison for all of the Southern California American Red Cross. It was suggested that a frequency in the 430 MHz range be used. A visitor, Kent Darden WA6GMC was present, representing the Red Cross. Chairman Burton directed Tom KA6SOX to be the SCDCC liaison to the Southern California

American Red Cross, working with Kent Darden WA6GMC.

1.2 GHZ REPEATER — The planned 1.2 GHz 4800 baud full-duplex repeater for Santiago Peak was discussed. The machine will have four ports, as follows:

- | | |
|---------|---------|
| o AJ6F | o KD6SQ |
| o N6CQW | o K6IYK |

NEXT TECHNICAL COMMITTEE MEETING — Chairman Burton announced that the next meeting of the Technical Committee will be held in approximately two months; the location and exact date are to be determined. The location will probably be somewhere in either L.A. County or Orange County. Mike N6KZB will advise the members of the Technical Committee of the meeting place and date, once they are known. Due to illness and a prior commitment, Chairman Mike Burton then excused himself from the meeting, and before leaving, turned the chair over to the SCDCC Vice President, Don Root, WB6UCK.

DEFINITION OF PACKET RADIO TERMS — Jim K6IYK led a discussion of packet radio terms and their definitions. The following terms were discussed, and the group agreed on DEFINITIONS for them WITHIN THE CONTEXT OF AMATEUR PACKET RADIO, as listed below:

Digipeater — A radio station that selectively receive and retransmits packet frames in a half-duplex, normally single frequency, environment.

Duplex Digital Repeater (DDR) — A radio station that nonselectively receives, regenerates, and immediately retransmits packet frames in a full-duplex, dual frequency environment.

Local Area Network (LAN) — A LAN is a group of stations on a specific frequency and located in a given geographic area which can communicate with each other and expect that the primary requirements of the CSMA/CD protocol will be satisfied. Most importantly, it is expected that all stations will be able to hear all other stations in the network. The LAN criteria can most easily be met through the restriction of geographic area and the use of Duplex Digital Repeaters.

Metropolitan Area Network (MAN) — As used in Amateur Packet Radio, a MAN is a local network of stations which in some way does not meet all of the qualifications for classification as a LAN. Typically, a MAN results from inability to ensure that all stations can hear each other. (This condition is referred to as the "hidden terminal" problem, which produces extra collisions and subsequence)

Wide Area Network (WAN) — A WAN is a network of stations so widely dispersed that the normal CSMA/CD requirements can not reasonably be met. Typically a

Cont'd on pg. 12

P.V. Node *cont'd from Pg. 1*

South Bay (from LAX South and the 60-5 Fwy West) should use the node as follows:

- C PV2 (wait for connected to..)
- C AJ6F-1 (BBS sign on and business as usual)

Note that the second connect is after the connection has been established with the node and should be sent in the converse mode as opposed to the command mode on the TNC.

The PV2 node as well as the AJ6F BBS is hereto serve the amateur radio community in general, and to assist with the goals of emergency groups in the area.

73 de Bob Poole, AJ6F

W9ZRZ BBS list *cont'd from pg. 1*

The List is limited to PBBS capable of receiving and initiating autoforwards according to WORLI protocols (eg WORLI, WA7MBL, N4XI, AA4RE, MSYS, software) The List is further limited to stations which support either local users, or service other PBBS. No "Personal PBBS" or "Mail Drops" are included.

The disk is mailed to over 100 sysops of HF BBSs around the country; it will be uploaded to CompuServe and it should be available after 26-27 April on the following Telephone BBSs:

KQ1K 508 385-3427
WA6RDH ... 916 678-1535
VE3GYQ ... 519 660-1442

The disk is available free to anyone who sends me a Formatted 3.5" or 5.25" DS/DD or DS/HD Floppy Disk together with a Self-Addressed Stamped Floppy Mailer. Mail to:

Dave Zeph
16310 Spring Mill Road
Westfield, IN, 46074

Operating in Foreign Countries

If you are planning a trip to a foreign country other than Canada and are interested in the possibility of operating there, you must apply for a license even if the US has a reciprocal Operating Agreement with that country.

You can obtain information about operating from virtually any country by writing the Regulatory Information Department at HQ. Please include an SASE. Remember that many countries require a minimum of 4-6 weeks lead time for processing of reciprocal permit requests, although some do offer walk-in processing.

Traveling to Canada? US amateurs traveling to VE-land are reminded that the US has automatic reciprocity with Canada. All that is needed for operation north of the border is your original license. Visitors must use the appropriate VE/VO/VY identifier, such as N4YE/VE2 when visiting Quebec.

The Bench Test

Note: In each issue of the SCDCC Newsletter, "The Bench Test" will feature an article of a technical nature. All submissions should be sent to the editor for consideration.

Deviation

by Terry Neal, AA6TN

As it turns out, less FM deviation seems to be best for packet radio rather than more. But most hams don't have a available to them a service monitor or a deviation meter. Well you can check the deviation of your radio with the following minimum equipment quite easily.

1. All mode two meter radio
2. Audio oscillator
3. Counter (maybe)

Radio 1 will be the radio we are testing for deviation and Radio 2 will be the all mode radio. Radio 2 MUST have SSB. Here is the procedure for doing the test:

1. Using the audio oscillator inject audio at 2khz thru a 10k resistor to Radio 1. (this is the radio to be tested)
2. Put Radio 2 in the FM mode.
3. Increase the audio oscillator amplitude (not frequency) of Radio 1 just to the point where the received audio at Radio 2 stops increasing in audio strength (this is the point where Radio 1's audio limits)
4. Now put Radio 2 in SSB mode. Key up Radio 1 without the audio oscillator connected. Adjust tuning of Radio 2 until a tone is heard of approx 1khz and memorize the sound of that tone. (good luck!) ed.
5. Reconnect the audio oscillator to Radio 1 and adjust the audio oscillator until the 1khz side tone at Radio 2 NULLS out.
6. Deviation = FREQ of OSC. x 2.404

Radio 2 need not be at your qth-your helper can be on telephone. Depending on the quality of your audio oscillator you might need a counter across the oscillator.

Once you understand how the above works turn the equation around and solve for the FREQ of the OSCILLATOR and adjust the test radio for the desired deviation.

This method is used by a friend of mine who runs a commercial FM radio station. Thanks to N6JF for relating this method to me.

SCAPS *cont'd from pg. 7*

WORLI BBSs in Southern California may elect to use K6IYK as a regional WP server. This is useful for several reasons:

1. WP inquiries for the region may be answered more quickly
2. The local database is transmitted to W9ZRZ more efficiently
3. WP information can be passed along the 30 meter route, thus avoiding the 20 meter "mail lag" (IYK forwards to AJ6F and then on to the 30 meter net)

N6BVU reported on the status of several of the coordination bodies in the area. He reported that the "Packet-Cluster" DX-reporting systems have been coordinated to 144.375.

The SCAPS group adjourned at 13:30 for a no-host luncheon.

The Devil in your TNC

By Mike Hooper, KF6PU

HF Packet Radio can be frustrating. To some it is occasionally frustrating, but to others it is always very frustrating. It is the latter group of Hams to which this story is dedicated.

Once upon a time there existed just two Packeteers. Baud who lived in New York and Rate who lived in Los Angeles. It was an idyllic world then. The Earth's magnetic field was quite and settled and Sunspot numbers were always very high. The RF path between the two cities was so good that it was a highway rather than a path. Baud and Rate exchanged megabytes of data during those days and never a byte was ever re-sent. All was well on 14.103 MHz and God smiled.

But soon things changed for there lived in the City of Collision an evil genius who had a very sinister master plan. The tale of this devil's tricks is a wicked story indeed!

He knew that there were thousands of Packeteers operating at 1200 baud on VHF. He knew that many were afraid to change default parameter settings and that many others never read any of the books on Packet Radio. But most importantly, he knew of every Ham's innate desire to talk to far-away places and he lured them down to 14.103 with tales of transcontinental and transoceanic Packet possibilities. And they came by the multitudes. The first phase of his master plan was an astounding success!

As the pilgrimage to 14.103 grew daily by the hundreds he decided to enact phase 2 of his dreadful scheme. He knew that the multitudes coming down from VHF were spoiled by strong and reliable RF pathways so he made propagation conditions on 14.103 highly variable and far less reliable. He was determined to make long distance packet a real crap shoot. He knew from his visits to Las Vegas that to keep the enticement level high he had to let a few people win some of the time. So periodically he would he would allow band conditions to improve to such a degree that spectacular connections were made. With missionary zeal these fortunate pilgrims spread the word about the treasures to be found in the new world of Hf Packet. And the multitudes descended upon the new land like voracious Locust and the sweet sound of lonely braapps yielded to the thunderous cacophony of collisions galore.

Still not satisfied with the evil he had wrought, the evil genius began to enact phase 3 his dreadful plan. He decided to make the road to the land of 14.103 much more difficult to navigate. Even though it was still possible to travel on either the lower or upper side of the road to the promised land, successful navigation depended on one's TNC using a 1600/1800 HZ. tone pair. Knowing that we Hams have an insatiable urge to buy the latest gear on the market, the devil, in one of his most wicked fits, caused the production of new TNCs with different tone pairs. Among the new TNCs, his favorite were those that utilized the 2100/2300 Hz. pair. The evil one praised himself for this masterful stroke. The carnage this caused was beyond his expectations. It was analogous to an armada of ships run aground because the skippers had failed to take into account the deviation of their compasses. What a delight this was for the evil genius! Two packeteers could both tune their rigs to 14.103, just

like they did on VHF frequency, yet not be able to QSO because they were, in fact, tuned 500 HZ off each other. To make things even worse many packeteers had unfounded faith in the accuracy of the digital displays on their rigs.

Panic soon reigned in the promised land. Navigation to the promise land became sufficiently difficult that tuning indicators became a necessity. But, even the very best tuning indicator only indicates that you are tuned to some station not, necessarily, the desired station. Connecting to a station became sufficiently difficult that asking a station to qsy to a clearer frequency was considered blasphemy.

The master of despair rejoiced as phase 3 of his sinister scheme was a success. The pilgrims to HF packet were like prospectors huddled closely together fearful that even one step to the right or left may cause their fall from grace.

(to be continued)

The W6FNO Digital Network

As part of the continuing effort to assist Amateur Radio operators in providing Public Service Communications capabilities, the operators of the W6FNO repeater system have installed a network dedicated to Public Service Communications.

With located on Johnstone Peak, Onyx Peak, Palos Verdes and in Sylmar, the majority of the Southern California area is now covered. In addition, there is available on the channel, a BBS with full Westnet forwarding capabilities.

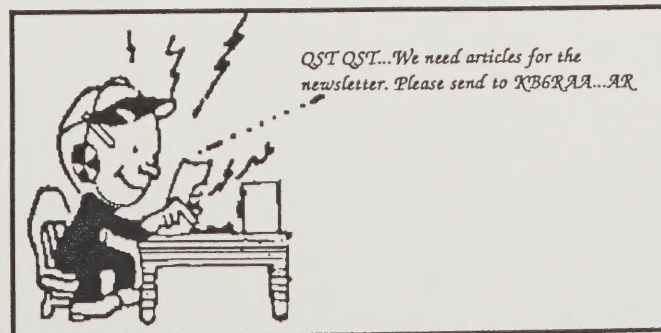
The system operates on 221.960 MHz, with the following nodes:

W6FNO-1	Johnstone Peak
W6FNO-3	Onyx Peak
W6FNO-2	Palos Verdes

There are plans to add additional nodes as usage warrants. The Westnet BBS ID is W6FNO-10 and accessible thru W6FNO-1.

There are several ARES and Red Cross facilities either using the channel or with capabilities for use. This is an ideal meeting place for appointees for the timely dissemination of information.

Any questions or comments may be directed to Ell, WB6MKA @ W6FNO.



THE I-FRAME

WAN is made up of stations which provide a bridge or gateway from some other network, and which together form a network of networks.

Gateway — A gateway connects together two or more networks of DIFFERING protocols.

Bridge — A bridge connects together two or more networks of the SAME protocol.

Frequency Diversity — The use of multiple frequencies at a bridge or gateway station to assist in precluding unnecessary packet collisions. Especially applicable in packet radio when designing linear trunking systems.

Hub — A term that refers to the physical site of a multi-port packet station operating as a network resource such as a bridge and/or gateway node. The most common hubs in our networks today are the Multi-port NET/ROM Nodes and the BBS's with bridging ("Gateway") capability.

Trunk — The network links that exist between two or more nodes to provide interconnectivity. The nodes may be considered as part of the trunk. Typically a trunk links together multiple LANs and/or MANs with major segments usually defined as those trunk elements between hubs.

The group also agreed to DISCONTINUE usage of the following terms WITHIN THE CONTEXT OF AMATEUR PACKET RADIO:

Backbone — This term fails to clearly define the item being referenced.

High-level — "High" is relative, and the term usually is applied when what is really meant is "wide-area."

KD7XG recommended the book, Computer Networks, by Andrew S. Tannenbaum, for further reading.

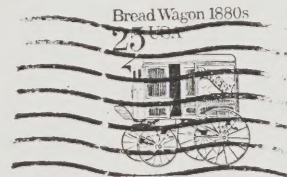
ADJOURNMENT — Acting committee chairman Don Root WB6UCK adjourned the meeting at approximately 3:00pm.

Respectfully submitted,

Bruce A. Brown, AC6O @ WA6YNT

Technical Committee Scribe

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CHATSWORTH, CA 91313



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